

CLAIMS

1. A rotary shaft for rotation about an axis and carrying an eccentric,
5 substantially circular section, radially extending flange, connected to the
radially outer surface of which is an annular housing affording a cavity defined
in part by radially inner and radially outer coaxial cylindrical surfaces, the axis
of which is offset from the axis of the shaft, the cavity accommodating an
annular inertia mass, the radially inner and radially outer surfaces of the cavity
10 being opposed to radially inner and radially outer surfaces, respectively, of the
inertia mass, whereby there are two pairs of opposed surfaces, one of the said
pairs constituting bearing surfaces guiding relative rotation of the inertia mass
and the housing about the axis of the coaxial cylindrical surfaces, the other of
the said pairs being spaced apart to define an annular space accommodating a
15 displaceable material, the inertia mass and the cavity having a dimension in the
radial direction which has a maximum value at a first position opposite to the
direction of eccentricity and decreases progressively in both circumferential
directions to a second position offset by 180° from the first position.
- 20 2. A shaft as claimed in Claim 1 in which the displaceable material is a
viscous liquid.
3. A shaft as claimed in Claim 2 in which the viscous liquid comprises a
grease.
- 25 4. A shaft as claimed in Claim 1 in which the housing is closed by a cover
plate extending in a radial plane.

5. A shaft as claimed in any one of the preceding claims including spring means acting on the inertia mass and biasing it towards a position in which the radial width of the space is constant.

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6. A shaft as claimed in any one of the preceding claims in which the thickness in the axial direction of the portion of the housing opposite to the direction of eccentricity is greater than that of the eccentric flange.

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7. An automotive crankshaft for rotation about an axis and carrying at least one pair of axially spaced, radially extending eccentric crankwebs, at least one of which has a circular cylindrical radially outer surface, the axis of which is offset from the axis of the crankshaft and connected to which is the inner surface of an annular member of resilient material, connected to the outer surface of which is the cylindrical inner surface of a annular inertia mass, the weight distribution of which counterbalances the eccentricity of the associated crankweb.

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